

AMENDMENTS TO THE CLAIMS

Claim 1: (currently amended): A light-emitting diode comprising a light-emitting diode chip mounted on a surface of a printed substrate, the light-emitting diode chip including:

a transparent substrate;

a semiconductor layer laminated on the transparent substrate and formed of an N-type semiconductor layer and a P-type semiconductor layer, wherein a PN junction interface between the N-type and P-type semiconductor layers is perpendicular to the surface of the printed substrate, the semiconductor layer including:

a light-emitting portion in the vicinity of the PN junction interface; and

a first face and a second face, both the first face and the second face parallel to the transparent substrate wherein the first face is in contact with the transparent substrate;

a pair of electrodes for applying voltage to the semiconductor layer;

a light reflecting layer formed of a metal thin film formed on the second face of the semiconductor layer substantially parallel to the PN junction interface and for reflecting light emitted from the light-emitting portion; and

a recessed section formed at a corner of the semiconductor layer adjacent to the printed substrate the recessed section formed through the light reflecting layer and a portion of the semiconductor layer to form an exposed surface of one of ~~either~~ the N-type semiconductor layer [[or]] and the P-type semiconductor layer;

wherein a first electrode of the pair of electrodes is formed on the light reflecting layer and a second electrode of the pair of electrodes is formed on the exposed surface adjacent to the printed substrate.

Claim 2-7 (cancelled)

Claim 8 (previously presented): A light-emitting diode claimed in Claim 1, wherein the metal thin film has a thickness of 100 nm or more.

Claim 9 (cancelled)

Claim 10 (previously presented): A light-emitting diode claimed in Claim 1, wherein the transparent substrate is transparent to color emitted by the light-emitting diode chip.

Claim 11 (withdrawn): A method for manufacturing a light-emitting diode comprising mounting, on a surface of a printed substrate, a light-emitting diode chip having a substrate, a semiconductor layer which is laminated on a surface of the substrate, is formed of an N-type semiconductor layer and a P-type semiconductor layer and has a light-emitting portion in the vicinity of a PN junction surface between the N-type and P-type semiconductor layers, a pair of electrodes for applying voltage to the semiconductor layer, and a light reflection layer reflecting light emitted from the light-emitting portion, thereby obtaining the light-emitting diode, the method comprising, for mounting the light-emitting diode chip on the printed substrate,

the step of forming beforehand the light reflecting layer on a front surface or a back surface of the substrate of the light-emitting diode chip or in the light-emitting diode chip in such a manner that the light reflecting layer is approximately parallel to the PN junction surface, and

the step of fixing the obtained light-emitting diode chip on the printed substrate so that the PN junction surface is perpendicular to the surface of the spring substrate and electrically connecting the pair of electrodes of the light-emitting diode chip to the printed substrate.

Claim 12 -25 (cancelled)

Claim 26 (previously presented): A light-emitting diode claimed in Claim 8, wherein the transparent substrate is transparent to color emitted by the light-emitting diode chip.

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Claim 27 (cancelled)